

TMDLs for Fecal Coliform Bacteria for Selected Subsegments in the Sabine River Basin, Louisiana (110202, 110401, 110402, 110501, and 110504)

Fact Sheet

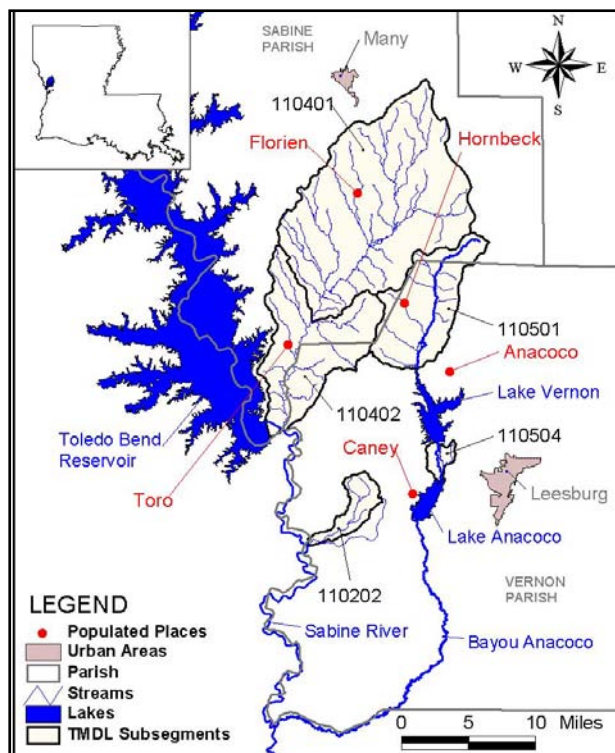


Figure 1. Location of the impaired subsegments in the Sabine River Basin

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulations (Title 40 of the *Code of Federal Regulations* [CFR] Part 130) require states to develop Total Maximum Daily Loads (TMDLs) for waterbodies that are not meeting water quality standards. A TMDL establishes the amount of a pollutant that a waterbody can assimilate without exceeding its water quality standard for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and nonpoint sources to restore and maintain the quality of the state's water resources.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody and may include a future growth (FG) component. The TMDL components are illustrated using the following equation:

$$TMDL = \sum WLAs + \sum LAs + MOS + FG$$

This fact sheet presents a summary regarding the TMDLs that have been developed for fecal coliform bacteria for five subsegments in the Sabine River in western Louisiana. The area of interest for this TMDL consists of the entire length of Bayou Toro (subsegments 110401 and 110402), which flows to the Sabine River directly below Toledo Bend Reservoir; West Anacoco Creek (subsegment 110501), which flows into Lake Vernon; the portion of Bayou Anacoco (subsegment 110504) between Lake Vernon and Lake Anacoco; and Pearl Creek (subsegment 110202), which flows directly into the Sabine River between Bayou Toro and Bayou Anacoco (Figure 1).

The Louisiana Department of Environmental Quality (LDEQ) has included the aforementioned five subsegments in the Sabine River Basin on the 2004 section 303(d) list for fecal coliform bacteria impairments (Table 1). The impaired designated uses for the five subsegments are primary contact recreation and fish and wildlife propagation.

Table 1. Section 303(d) listing for subsegments included in this report

Subseg. number	Subsegment name	Impaired use ^a	Causes of impairment	Suspected sources of impairment
			Fecal coliform bacteria	
110202	Pearl Creek	PCR	X	Managed pasture grazing
110401	Bayou Toro	PCR	X	Managed pasture grazing
110402	Bayou Toro	PCR	X	Managed pasture grazing
110501	West Anacoco Creek	PCR, FWP	X	Managed pasture grazing
110504	Bayou Anacoco	PCR	X	Wildlife other than waterfowl

^a PCR = primary contact recreation; FWP = fish and wildlife propagation

The numeric water quality criteria that apply to the impaired subsegments in the Sabine River Basin and that were used to calculate the total allowable pollutant loads are the primary contact water quality criteria for fecal coliform bacteria. The primary contact recreation criteria are applicable from May 1 through October 31. During the remainder of the year (November 1 through April 30), secondary contact criteria are applicable. For primary contact recreation, no more than 25 percent of the total samples may exceed a fecal coliform bacteria density of 400 colonies/100 mL. The samples should be collected on a monthly or near-monthly basis. Secondary contact criteria are similar to primary contact criteria in that no more than 25 percent of the total samples collected on a monthly or near-monthly basis may exceed a fecal coliform bacteria density of 2,000 colonies/100 mL.

The TMDLs for fecal coliform bacteria were developed using load duration curve methodology. This method illustrates allowable loading at a wide range of streamflow conditions. The steps for applying this methodology were (1) developing a flow duration curve; (2) converting the flow duration curve to load duration curves; (3) plotting observed loads with load duration curves; (4) calculating the TMDL, MOS, FG, WLA and LA; and (5) calculating percent reductions. The seasonal fecal coliform bacteria TMDLs were developed on the basis of analyses of the applicable water quality criteria (i.e., calculating allowable loads and percent reductions for both summer and winter).

In TMDL development, allowable loadings from all pollutant sources that cumulatively amount to no more than the TMDL must be established and thereby provide the basis for establishing water quality-based controls. WLAs were given to permitted point source discharges. The LAs include background loadings and human-induced nonpoint sources. An explicit MOS of 10 percent and an FG component of 10 percent were included. None of the subsegments requires fecal coliform bacteria reductions in the winter months, and the summer month reductions range from 28 to 72 percent. A summary of the TMDLs for each of the subsegments is presented in Table 2.

Table 2. Summary of fecal coliform bacteria TMDLs, MOS, FG, WLAs and LAs for the Sabine River Basin

Subsegment	Station	Season	Percent reduction	Total allowable loading	Explicit MOS (10%)	Future growth (10%)	Σ WLA	Σ LA
				1 × 10 ⁹ colonies/day				
110202	1156	Summer	72	2.48	0.25	0.25	1.15	0.83
110202	1156	Winter	0	36.05	3.61	3.61	1.15	27.69
110401	1160	Summer	67	83.23	8.32	8.32	0.95	65.64
110401	1160	Winter	0	1,209.58	120.96	120.96	0.95	966.72
110402	1161	Summer	55	33.59	3.36	3.36	0.00	26.87
110402	1161	Winter	0	488.08	48.81	48.81	0.00	390.46
110501	1162	Summer	60	35.03	3.50	3.50	0.39	27.64
110501	1162	Winter	0	448.66	44.87	44.87	0.39	358.54
110504	1165	Summer	28	2.78	0.28	0.28	0.13	2.10
110504	1165	Winter	0	43.24	4.32	4.32	0.13	34.47

For More Information

EPA seeks input on this proposed TMDL, including comments, information, and data from the general and affected public. For additional information on this TMDL project, please contact the EPA staff listed below:

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